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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/135,180	08/17/1998	YUZO OHTSURU	5586D-6845	8990

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EXAMINER
NGUYEN, LUONG TRUNG

ART UNIT	PAPER NUMBER
2612	

DATE MAILED: 04/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/135,180	OHTSURU, YUZO	
	Examiner	Art Unit	
	LUONG T NGUYEN	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 February 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *5-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. The affirmation of the Applicant's election of claims 1-4 of Group I in Paper No. 7 filed on 2/24/2003 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 5-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 7 filed on 2/24/2003.

Response to Arguments

3. Applicant's arguments filed on 2/24/2003 have been fully considered but they are not persuasive.

In re page 6, Applicant argue that in the present invention, a thinned-out image signal can be obtained before performing frame transfer to the storage section, while in the case of Parulski et al., in contrast, the image signal is not thinned before performing frame transfer to the storage section. Therefore, structures in accordance with the present invention are substantially different from those of Parulski et al.

In response, it is noted that the features upon which applicant relies (i.e., a **thinned-out image signal can be obtained before performing frame transfer to the storage section**) are not recited in the rejected claim(s). And the claims are rejected based on language claim.

Regarding claim 1, Applicant claimed claim1 with the limitation "a first set of plurality of light receiving elements in which at least one of the corresponding transfer electrodes is activated and simultaneously at least one of the transfer electrodes is inactivated in first and second image pickup operations; and a second set of plurality of light receiving elements in which all of the corresponding transfer electrodes is in activated in the first image pickup operation, and at least one of the transfer electrodes is activated and simultaneously at least one of the transfer electrodes is inactivated in second image pickup operation." The Examiner considers that claim1 as claimed still do not distinguish from Kazui patent in view of Parulski et al. patent. Paruski et al. disclose an electronic camera employs a progressive scan image sensor with a fast dump structure 62 (see abstract, figure 1). Parulski et al. disclose the first image pickup operation is at the time the first two lines 1 and 2 (first set light receiving elements) are read out (transfer electrodes is activated) and the two lines 3 and 4 (second set light receiving elements) are eliminated (transfer electrodes is inactivated); and second image pickup operation is at the time the two lines 5 and 6 (first set light receiving elements) are read out and the two lines 7 and 8 (second set light receiving elements) are eliminated (figure 10, column 7, lines 1-35).

In re pages 6-7, Applicant argues that claim 4 defines a feature in accordance with the invention relating to the difference in impurity concentrations between a channel for the first set of light receiving elements P1 and a channel for the second set of light receiving elements P2.

Neither of the light receiving elements P1 or P2 corresponds to a horizontal transfer channel. Therefore, claim 4 is submitted to clearly distinguish patentably over the combination of Takahashi et al. with Kazui and Parulski et al.

In response, the Examiner disagrees, regarding claim 4, Applicant claimed claim 4 with the limitation "wherein a channel region under the transfer electrode corresponding said first light receiving element and a channel region under the transfer electrode corresponding said second light receiving element differ in their concentration of impurities." The Examiner considers that claim 4 as claimed still do not distinguish over Kazui patent in view of Parulski et al patent further in view of Takahashi et al. patent. Kazui and Parulski et al. do not show a channel region under the transfer electrode corresponding said first light receiving element and a channel region under the transfer electrode corresponding said second light receiving element differ in their concentration of impurities. However, Takahashi et al teach this feature. Takahashi et al. disclose a solid-state image pickup device in which the potential well in the channel region 41 can be made deeper by adding more N-type impurities than those of channel region 31 (figure 5, column 8, lines 18-24).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazui (US 5,121,192) in view of Parulski et al. (US 5,668,597).

Regarding claim 1, Kazui discloses a solid-state color imaging device, comprising a semiconductor substrate (N-type semiconductor substrate 50, column 4, lines 5-18, figures 4-6); a semiconductor region (P-type diffusion layer 52, lines 5-18, figures 4-6); a plurality of channel regions (channel regions 1, lines 5-18, figure 3-6); a plurality of picture elements (cells CE, lines 5-18, figure 3); a plurality of transfer electrodes (transfer electrodes 3, 4, lines 5-18, figures 3-6); light receiving elements (light receiving portion LR, column 4, lines 33-40, figure 6); storage elements (charge accumulation portion CA, column 4, lines 33-40, figure 6).

Kazui fails to specifically disclose a first set of plurality of light receiving elements in which at least one of the corresponding transfer electrodes is activated and simultaneously at least one of the transfer electrodes is inactivated in first and second image pickup operations; and a second set of plurality of light receiving elements in which all of the corresponding transfer electrodes is in activated in the first image pickup operation, and at least one of the transfer electrodes is activated and simultaneously at least one of the transfer electrodes is inactivated in second image pickup operation. However, Parulski et al. disclose an electronic camera employs a progressive scan image sensor with a fast dump structure 62 (see abstract, figure 1). Parulski et al. disclose the first image pickup operation is at the time the first two lines 1 and 2 (first set light receiving elements) are read out (transfer electrodes is activated) and the two lines 3 and 4 (second set light receiving elements) are eliminated (transfer electrodes is inactivated); and second image pickup operation is at the time the two lines 5 and 6 (first set light receiving elements) are read out and the two lines 7 and 8 (second set light receiving elements) are

eliminated (figure 10, column 7, lines 1-35). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Kazui by the teaching of Parulski et al. in order to provide a high quality progressive scan still image (column 6, line 51).

Regarding claim 2, Parulski et al. disclose wherein said first set of light receiving elements and said second set of light receiving elements are arranged in a matrix form in a predetermined region on the basis of a predetermined arranged rule (figure 10).

Regarding claim 3, Parulski et al. disclose wherein said first set of light receiving elements and said second set of light receiving elements are aligned in a row direction, and said first set of light receiving elements and said second set of light receiving elements are alternately arranged in a column direction (figure 10).

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kazui (US 5,121,192) in view of Parulski et al. (US 5,668,597) further in view of Takahashi et al. (US 6,288,744).

Regarding claim 4, Kazui and Parulski et al. fail to specifically disclose wherein a channel region under the transfer electrode corresponding said first light receiving element and a channel region under the transfer electrode corresponding said second light receiving element differ in their concentration of impurities. However, Takahashi et al. disclose a solid-state image pickup device in which the potential well in the channel region 41 can be made deeper by adding

more N-type impurities than those of channel region 31 (figure 5, column 8, lines 18-24). This shows that the concentration of impurities of channel region 41 is different from the concentration of impurities of channel region 31. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Kazui by the teaching of Parulski et al. in order to let charges can be efficiently transferred between two channel regions.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Luong Nguyen** whose telephone number is **(703) 308-9297.** If

attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Wendy Garber**, can be reach on **(703) 305-4929.**

Any response to this action should be mailed to:
Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:
(703) 872 - 9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

LN LN
4/05/2003

WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600